

Notes on Two New Species of Fishes from the Lake Biwa.

BY

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1. *Leucogobio Günther*.*güntheri** *C. Ishikawa*.

Pl. III. Fig. 1.

D. 10. A. 8. V. 8. L. lat. 35-39. L. transv. $5\frac{1}{5}$.

Total Length	51.0	53.0	55.0	60.0	62.0	63.0	72.0	72.0	72.0	75.0
Total „ without Caudal ...	41.5	44.5	45.5	50.0	51.0	52.0	61.0	61.0	—	63.0
Length of the Head	12.0	14.0	13.0	14.5	15.5	15.5	16.5	16.0	16.5	18.0
„ „ „ Snout	3.5	4.0	3.5	4.0	4.5	4.0	5.0	5.0	5.0	5.0
„ „ „ Eye	3.2	3.5	3.0	3.5	3.0	3.0	3.5	4.0	4.0	4.0
„ „ „ Pectoral Fin	8.0	7.5	8.0	7.5	8.0	9.0	10.5	10.5	10.5	10.0
„ „ „ Ventral Fin	—	7.0	7.0	8.0	8.0	8.0	9.5	9.0	9.5	10.0
Height of the Body at the Root										
of the Dorsal Fin	10.0	11.5	11.0	10.5	11.5	12.0	14.0	15.0	15.0	14.0
Width of the Interorbital Space..	5.0	5.5	5.0	5.5	5.5	6.0	6.0	6.5	6.0	6.0
Total Length	85.0	88.0	88.0	92.0	92.0	99.0	100.0	103.0	105.0	112.0
Total „ without Caudal ...	72.0	73.0	75.0	77.0	77.0	79.0	84.0	87.0	87.5	95.0
Length of the Head	20.0	20.0	20.0	21.5	20.0	22.0	24.0	25.0	24.0	26.5
„ „ „ Snout	5.5	6.0	6.0	6.0	5.5	7.0	7.0	7.0	6.0	7.5
„ „ „ Eye	4.0	4.5	4.0	5.0	4.5	4.0	5.5	5.0	5.0	5.5
„ „ „ Pectoral Fin	11.0	12.0	11.0	12.5	13.0	13.0	12.0	11.5	14.0	14.5
„ „ „ Ventral Fin	10.5	12.0	—	12.0	11.5	6.0	—	—	—	13.5
Height of the Body at the Root										
of the Dorsal Fin	18.0	18.0	17.5	20.0	19.0	20.0	20.0	24.0	21.0	21.5
Width of the Interorbital Space..	7.0	7.0	8.0	7.0	8.0	8.5	8.5	9.0	8.5	10.0

The height of the body is a little more than one-fourth of the total length, the length of the head exceeds that of the height of the body

* Report on the collections of Reptiles, Batrachians and Fishes made by Messrs. Potanin and Berezowski in the Chinese Provinces Kansu and Sze-Chuen. 1896.

** Dedicated to Dr. Albert Günther of the British Museum.

taken at the root of the dorsal fin. Head oblong, snout longer than the eye which is about one fifth of the length of the head and considerably more than one-half of the width of the interorbital space. Mouth slightly oblique, slightly wider than long, its posterior angle ending at about two-third to three-fourth from the end of the snout to the orbit; barbel a little shorter than the length of the eye, placed on the extremity of the intermaxillary. The origin of the dorsal fin is in advance of that of the ventral, and slightly nearer to the end of the snout than to the root of the caudal. Pectoral fin shorter than the head without snout, and nearly as long as the distance from the middle point of the orbit to the end of the operculum, and terminates a long way from the root of the ventral. Ventral fin slightly shorter than the pectoral, and reaches to about two-third the distance between the root of the ventral and the vent. Caudal fin deeply emerginate.

There are three series of scales between the lateral line and the ventral fin. Back brownish, a blackish band along the side of the body beginning from upper part of the gill-opening to the root of the caudal fin. In young specimens of 90 mm and less a small triangular spot of blackish colour is visible at the root of the tail in the line with and distinct from the end of the black band. Dorsal fin with a narrow streak of blackish colour between each rays. Pharyngeal teeth $5/3-3/5$, slightly hooked at the tip, except the foremost one of the 5. Intestinal tract with only a single turn. Peritoneum with a few black pigments. Number of vertebrae 35, of which 16 are caudal.

We obtained a number of these interesting fishes at the fish-market at Matsubara a small village situated close to the Hikone town, in the month of December, 1898. A number of smaller but fine specimens were also sent to me from the same place, at my request, by my friend Mr. Hirase in the month of April this year. These are all caught in a kind of fish trap called Eri, which is very extensively used in the lake.

2. *Leucogobio jordani** *C. Ishikawa*.*Pl. III. Fig. 2.*D. 10. A. 7. V. 8. L. lat. 39-40. L. transv. $5\frac{1}{2}/4\frac{1}{2}$.

Total length 78; length of the head 26; length of the snout 5; length of the eye 4; length of the tail 19; length of the pectoral 11; of the ventral 10; height of the body at the root of the dorsal 12; width of the interorbital space 6.

The height of the body is nearly one-sixth of the total length, the length of the head one-third. Head relatively long, with the snout a little longer than the eye which is a little less than one-sixth the length of the head, and two-third of the width of the interorbital space. Mouth anterior, deeper than wide, its corner being half-way between the end of the snout and the anterior border of the eye. Barbels minute, about $\frac{2}{3}$ of the diameter of the pupil. The origin of the dorsal fin is slightly in advance of the root of the ventral, and just in midway between the end of the snout and the root of the caudal.

Pectoral fin about one-half the length of the head, without snout, terminating a long way from the root of the ventral. Ventral fin shorter than the pectoral and terminating in front of the vent. Caudal fin very deeply emarginate.

There are about three series of scales between the lateral line and the ventral fin. Silvery, back dark brownish, a bluish-black band on the side of the body just as in the preceding species. A small triangular spot of a deeper colour at the root of the caudal fin is very distinctly to be seen in small individuals just as in *L. guntheri*. Pharyngeal teeth 5 or $6/3-3/6$ or 5, hooked at the end. Intestinal tract with only a single convolution. Peritoneum with a few pigments of brownish colour. Number of vertebrae 33, of which 14 enter into the tail.

A single specimen was obtained at Shiwotsu in the month of December 1898. Two other specimens of smaller size were also found in our former collections from Matsubara.

* Dedicated to Prof. David S. Jordan of the Stanford University, U. S. A.

As will be seen from the descriptions and the figures, this latter species differs in a marked way from the former in its much slender form, its longer head and in its longer and deeper emerginated caudal fin. It is also less darker in colour, its peritoneal pigments brown and it has an additional number of pharyngeal teeth.

The genus *Leucogobio* is first given by Dr. A. Günther to two species of Chinese fishes collected by Russian naturalists during the years 1892-94, the one from the head waters of Yangtschkiang and the other from Hui-hsien, and are named as *L. taeniatus* and *L. herzensteini*. The fishes now described from our lake, form, as far as I know, the two additional species to this interesting genus. It will be allowed, however, to make a slight alteration in the generic diagnosis given by Günther, in as much as the formula of the pharyngeal teeth of *L. jordani* is 5 or 6/3-3/6 or 5, and not 5/3 or 2 or 1-1 or 2 or 3/5 as he states. Anyhow, it is of some interest to find that the fresh water forms of the central portion of Honshyu are related to those of China, and that these are not as yet known from Hokkaido. The occurrence of the giant salamander, *Megalobatrachus sieboldii*, in China and in mountainous portions of Southern Honshyu will also come to the same category.

College of Agriculture, May 1900.

EXPLANATION OF PL. III.

- Fig. 1. *Leucogobio güntneri*, Natural Size.
 Fig. 1a. " " Dorsal view of the head.
 Fig. 1b. " " Ventral view of the head.
 Fig. 1c. " " Tail of a small specimen showing the triangular spot at its base.
 Fig. 1d. " " Pharyngeal teeth, $\frac{2}{a} \times$ Zeiss.
 Fig. 1e. " " Anterior part of two individuals, showing the holes made by an ectoparasitic Crustacean just behind the pectoral fin.
- Fig. 2. *Leucogobio jordani*, Natural size.
 Fig. 2a. " " Dorsal view of the head.
 Fig. 2b. " " Ventral view of the head.
 Fig. 2c. " " Pharyngeal teeth, $\frac{2}{a} \times$ Zeiss.
 Fig. 2d. " " Pharyngeal teeth of another specimen.
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Fig. 1a.

Fig. 1b.

Fig. 1c.

Fig. 1d.

Fig. 2.

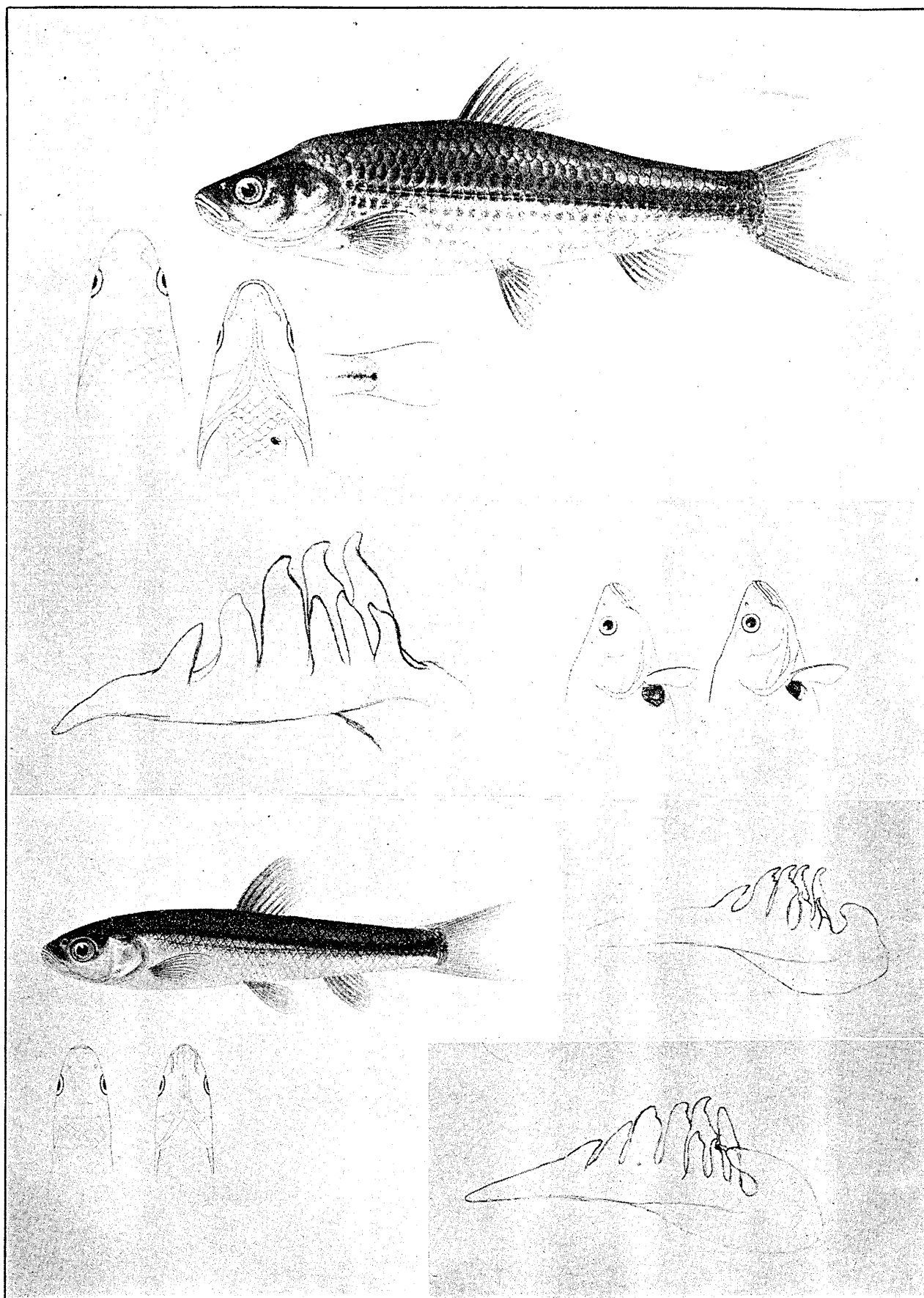
Fig. 2a.

Fig. 2b.

Fig. 1e.

Fig. 2c.

Fig. 2d.



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Fig. 1. *Leucogobio güntheri*, Fig. 2. *Leucogobio jordani*.